

Total No. of Questions : 8]

SEAT No. :

PD4102

[Total No. of Pages : 2

[6402]-62

**S.E.(Information Technology)
COMPUTER GRAPHICS
(2019 Pattern) (Semester - IV) (214453)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

- Q1)** a) Explain with diagram Cohen Sutherland line clipping algorithm. [6]
b) What is the concept of vanishing point in perspective projection? Explain with diagram. [6]
c) Explain rotation about arbitrary axis in 3D transformation. [6]

OR

- Q2)** a) Explain the following term with example [6]
i) Windowing
ii) Clipping
iii) Viewport
b) Find the normalization transformation window to viewport, with window, lower left corner at (1, 1) and upper right corner at (3, 5) onto a viewport, for entire normalized device screen. [6]
c) Explain with diagram, Perspective vanishing points as 1 point, 2 point and 3 point. [6]

- Q3)** a) Explain with diagram Gourand shading algorithm in detail. [6]
b) What is a segment? How do we create it? Why do we need segments?[6]
c) Explain CMY and HSV color models. [5]

OR

P.T.O.

- Q4)** a) What is Shading? What steps are required to shade an object using Phong shading algorithm? [6]
b) What are various color models? Explain with diagram RGB and HLS color model. [6]
c) Define color gamut. Explain with diagram CIE Chromaticity Diagram. [5]

- Q5)** a) Explain Bezier curve. List its properties. [6]
b) Write short notes on:
i) Koch curve
ii) Frame-by-frame Animation techniques [6]
c) What is fractal? Explain Hilbert curve in detail. [6]

OR

- Q6)** a) Write short notes on: [6]
i) B-spline curve
ii) Blending function of Bezier curve
b) What are the methods of controlling animation? [6]
c) Explain various types of animation languages. [6]

- Q7)** a) Explain the physical modeling in Virtual Reality. [6]
b) Explain haptic feedback in Virtual Reality system. [6]
c) Differentiate HMD and CAVE in Virtual Reality. [5]

OR

- Q8)** a) Explain the behavior modeling in Virtual Reality. [6]
b) What is geometric modeling in Virtual Reality? [6]
c) Explain gesture interfaces in Virtual Reality. [5]

